

ANALYSIS OF A HIGH EFFICIENCY MAGNETIC MOTOR

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Abstract

This paper explores the feasibility of designing a high efficiency magnetic motor, consisting solely of permanent magnets on both the rotor and the stator. Conventional magnetic motors typically achieve efficiencies below 100% because they operate with a single degree of rotational freedom. In this configuration, we introduce an additional degree of freedom by incorporating two rotating permanent magnets on the stator, forming a special magnetic gate. A physical analysis and numerical simulation demonstrate the potential viability of a high efficiency magnetic motor.

1 INTRODUCTION

There are several ways to design a conventional magnetic motor, and these models are well-documented in the literature available online. The efficiency of these motors rarely exceeds 90%, and in principle, cannot go beyond 100% without becoming a so-called perpetual motion machine. This efficiency limit is a consequence of Lenz's law [1], which states that a current induced in a coil by the motion of a permanent magnet creates a magnetic force that opposes the motion of the magnet. Lenz's law aligns with the principle of conservation of energy, which itself results from Newton's third law, as demonstrated in numerous publications [2-8]. Newton's third law defines a reciprocal (action/reaction) force derived from a time-independent potential energy. As such, a magnetic over-unity motor is deemed impossible under traditional configurations.

In this paper, we examine the physical and mathematical possibility of designing a high efficiency magnetic motor, a controversial topic, as discussed by authors like Gary Vesperman [9] and Rebecca Carité [10], russian author [11] in valuable papers on free energy. An online search reveals over 140 different magnetic motor configurations [12], often without adequate measurements or coherent explanations to verify over-unity performance. Most notably, credible numerical modeling is generally absent. However, recent academic interest is emerging, with some universities now conducting simulations of such motors [13-16]. Like conventional magnetic motors, an over-unity magnetic motor utilizes magnetic attraction and repulsion to create rotational motion. Free energy can potentially be extracted by arranging permanent magnets in special configurations as demonstrated in Johnson's motor [17], which utilizes inhomogeneous magnetic fields and holds a US patent.

2 CONFIGURATION OF A MAGNETIC MOTOR

A high efficiency magnetic motor becomes feasible when inhomogeneous magnetic fields are employed. This principle is well-known in physics, as demonstrated by the Stern-Gerlach experiment where a beam of silver atoms passes through an inhomogeneous magnetic field to confirm Sommerfeld's

prediction of spatial quantization.



FIGURE 1 – Experimental setup

A basic magnetic motor consists of a permanent magnet on the rotor and an electromagnet on the stator. When powered by AC, the electromagnet generates a magnetic field that interacts with the permanent magnet to produce torque. Conversely, if the rotor is rotated, it induces AC in the electromagnet, allowing the system to function as both a motor and a generator. In the present design, only the motor function is considered, as the configuration uses only permanent magnets on both rotor and stator. The interaction between these magnet's attractive and repulsive forces is utilized to produce rotational motion. The rotor is made of fiberglass and shaped like a disk, with uniformly distributed disc-shaped permanent magnets embedded around its edge. These magnet's magnetic fields are oriented perpendicularly to the plane of the disk, with the same direction on each face. The stator comprises four structures spaced 90° apart, each housing two cylindrical permanent magnets with radially oriented magnetic fields. These magnets rotate freely and face each other with a gap sufficient for the rotor to spin. Together, they form a magnetic funnel that generates inhomogeneous fields. To prevent eddy current braking, the rotor is made from fiberglass. The figure below illustrates the detailed configuration of this high efficiency magnetic motor.

Its operation is simple : all disc-shaped magnets on the rotor have the same orientation. The cylindrical stator magnets are arranged attractively

at a given moment. Synchronized via gears, their magnetic field direction is opposite to that of the rotor magnets for each face, creating an attractive force at the funnel's entry and a repulsive force at the exit. This ensures continuous torque in one direction. For optimal performance, the circumference of the cylindrical magnets should match the spacing between successive rotor magnets. Importantly, magnetic interaction forces obey Newton's third law and could slow the stator magnets. Therefore, the cylindrical magnet rotating in the same direction as the rotor is coupled to the rotor shaft via a speed-reduction gear, set by a number p defined hereafter to increase the power of the rotor. The motor is started with a reversible magnetic motor acting as a generator once the permanent magnet motor reaches cruising speed.

3 NUMERICAL SIMULATION

3.1 Mathematical formulation of the operating principle

It is well established that perpetual motion in a closed inertial system is impossible. This can be shown mathematically using the equation of motion for an object of mass m under gravitational force $\mathbf{F}$.

$$\frac{d\mathbf{P}}{dt} = \mathbf{F} \quad (1)$$

with the definition $\mathbf{P} = m\mathbf{U}$. Assuming that the force $\mathbf{F} = -\nabla E_P$ derives from a potential energy function, then the kinetic energy function has for expression :

$$m \frac{d\mathbf{U}}{dt} \cdot \mathbf{U} = -\mathbf{U} \cdot \nabla E_P = \mathbf{U} \cdot \mathbf{F} \quad (2)$$

The above equation can be rewritten in the form :

$$\frac{d}{dt} \left(\frac{1}{2} m \mathbf{U}^2 + E_P \right) = \frac{\partial E_P}{\partial t} \quad (3)$$

Since gravitational potential energy is time-independent, the right-hand term vanishes, confirming total energy conservation :

$$E_T = \frac{1}{2} m \mathbf{U}^2 + E_P = C t \quad (4)$$

Thus, conservation of energy holds for closed systems where interaction forces obey Newton's third law and are time-independent. If these conditions are not met, energy conservation can be violated, and gravitationally induced perpetual motion becomes theoretically possible.

Another approach to this problem consists to calculate the work dT done by the force $\mathbf{F}[\mathbf{R}(t), t]$ over displacement $d\mathbf{R}$ by taking the scalar product of force and displacement. Integrating this along the path gives the kinetic energy variation :

$$E_K[\mathbf{R}(t), t] - E_K[\mathbf{R}(t_0), t_0] = \int_{\mathbf{R}(t_0)}^{\mathbf{R}(t)} \mathbf{F}[\mathbf{R}'(t), t] \cdot d\mathbf{R}' \quad (5)$$

Substituting $d\mathbf{R}' = \mathbf{U}[\mathbf{R}'(t), t] dt'$ yields :

$$E_K[\mathbf{R}(t), t] - E_K[\mathbf{R}(t_0), t_0] = \int_{t_0}^t \mathbf{F} \cdot \mathbf{U} dt' \quad (6)$$

which leads again to :

$$\frac{dE_K}{dt} = \mathbf{U} \cdot \mathbf{F} \quad (7)$$

Using classical kinetic energy $E_K = m\mathbf{U}^2/2$, we recover equation 1. This concept shows why perpetual inertial motion is impossible when the force comes from a time-independent potential $E_P[\mathbf{R}(t)]$ because the integral becomes zero over a closed path, indicating no net energy gain since the relation 5 becomes :

$$E_K[\mathbf{R}(t)] - E_K[\mathbf{R}(t_0)] = - \int_{\mathbf{R}(t_0)}^{\mathbf{R}(t)} \nabla E_P[\mathbf{R}'(t)] \cdot d\mathbf{R}' \quad (8)$$

3.2 Numerical simulation of the Operating Principle

An adequate numerical simulation of the behavior of this motor would require the use of high-performance three-dimensional magnetic simulation software. However, an approximate numerical simulation is sufficient to accurately capture the operational dynamics of this motor. To avoid errors in the simulation, it is important to define a convention for measuring angles and rotations, taken counterclockwise with respect to the vector $\mathbf{n}$, as shown in Figure 2.

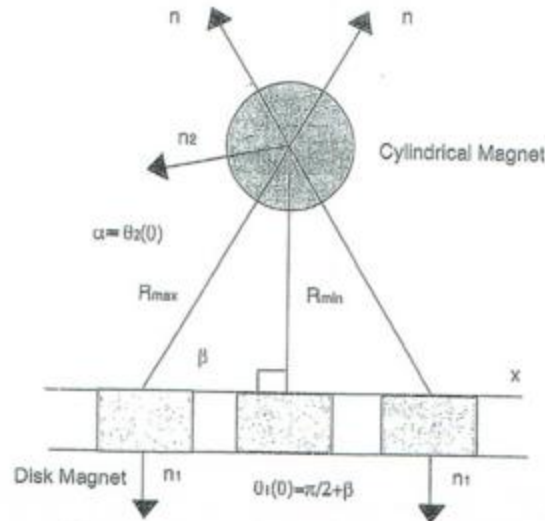


FIGURE 2 - Numerical Simulation

This direction of rotation is identical for the three rotational frequencies, namely : the rotor angular velocity ω , the rotation $n\omega$ of the rotor magnets passing through the magnetic gate (where n is the number of magnets embedded in the rotor), and finally the rotational frequency of the cylindrical magnets $n\rho\omega$, which is a priori independent. In order to synchronize all these frequencies, the cylindrical magnets are mechanically coupled to the rotor shaft using a transmission belt connected to a speed reducer, as illustrated in Figure 1.

A conventional electric motor is used to initiate the rotation of the rotor. Subsequently, this conventional motor operates as a generator if the magnetic motor is reversible. It is important to note that the frequency of variation of the angle θ_1 is half that of the n rotor magnets passing through the magnetic gate. Furthermore, at the initial instant, an angle β is defined between the x -axis and the vector $\mathbf{n}$, and an angle α between the magnetic dipole of the cylindrical magnet and the direction $\mathbf{n}$.

The permanent magnets on the rotor and the stator can be modeled as magnetic dipoles, all positioned in the same plane, as shown in Figure 2. For each dipole with magnetic moment $\mathbf{M}_1$ and $\mathbf{M}_2$, two identical mutual potential energies can be defined on either side of the disk according to the

formulation :

$$E_P(\mathbf{R}) = \frac{\mu_0}{4\pi R^3} \left[\mathbf{M}_1 \cdot \mathbf{M}_2 - \frac{3}{R^2} (\mathbf{M}_1 \cdot \mathbf{R}) (\mathbf{M}_2 \cdot \mathbf{R}) \right] \quad (9)$$

It is evident that the law of conservation of energy, defined by equation (4), applies to the above formulation. Now consider moving permanent dipoles where the dipole with magnetic moment $\mathbf{M}_2$ associated with the cylindrical magnet interact with the disk-shaped magnet with magnetic moment $\mathbf{M}_1$ where both magnetic moments now depend on time in this configuration then the magnetic potential energy explicitly depends on time [18, p.132] :

$$E_P[\mathbf{R}(t), t] = \frac{\mu_0}{4\pi R^3} \left[\mathbf{M}_1(t) \cdot \mathbf{M}_2(t) - \frac{3}{R^2} [\mathbf{M}_1(t) \cdot \mathbf{R}(t)] [\mathbf{M}_2(t) \cdot \mathbf{R}(t)] \right] \quad (10)$$

with the new definition $\mathbf{R}(t) = \mathbf{R}(t)\mathbf{n}(t)$. In this scenario, the conservation of energy is violated as described by equation 3 unless the partial time derivative of the potential energy is zero. This violation is done in a parametric manner as we shall see.

Let us now define the quantities for a disc-shaped magnet in orbital motion around of rotational center, we have

$$\mathbf{M}_1(t) = m_1 \mathbf{n}_1(t) \quad \text{with} \quad m_1 = \frac{B_1 L_1 S_1}{\mu_0} \quad (11)$$

while for a spinning cylindrical magnet around an axis, we have :

$$\mathbf{M}_2(t) = m_2 \mathbf{n}_2(t) \quad \text{with} \quad m_2 = \frac{B_2 L_2 S_2}{\mu_0} \quad (12)$$

The interaction energy between a disc-shaped magnet, thickness L_1 , surface S_1 , entering the air gap between two cylindrical magnets, length L_2 , surface S_2 has for expression :

$$E_P[R(t), t] = \frac{\mu_0 m_1 m_2}{4\pi R^3} \left[\mathbf{n}_1 \cdot \mathbf{n}_2 - 3(\mathbf{n}_1 \cdot \mathbf{n})(\mathbf{n}_2 \cdot \mathbf{n}) \right] \quad (13)$$

with the relation :

$$A(t) = \mathbf{n}_1 \cdot \mathbf{n}_2 - 3(\mathbf{n}_1 \cdot \mathbf{n})(\mathbf{n}_2 \cdot \mathbf{n}) = \cos(\theta_1 + \theta_2) - 3 \cos(\theta_1) \cos(\theta_2) \quad (14)$$

which can be rewritten in the form :

$$A(t, \alpha) = -[\cos[\theta_1(t) + \theta_2(t, \alpha)] + 3 \cos[\theta_1(t) - \theta_2(t, \alpha)]] \cdot 0.5 \quad (15)$$

thus, the magnetic potential energy, and its partial time derivative for two cylindrical magnets become :

$$E_P[R(t), t] = \frac{\mu_0 m_1 m_2}{2\pi R^3} A(t, \alpha) \Rightarrow P_T(t, \alpha) = \frac{\partial E_P}{\partial t} = \frac{\mu_0 m_1 m_2}{2\pi R^3} \frac{\partial A}{\partial t} \quad (16)$$

The quantity $R(t)$ has for expression

$$R(t) = R_{\min} + (R_{\max} - R_{\min})[1 + \cos(n * \omega t)] \cdot 0.5 \quad (17)$$

with the definitions :

$$R_{\min} = R_c + G_{ap} + E_d \cdot 0.5 \quad R_{\max}^2 \approx R_{\min}^2 + R_r^2 \sin^2(\pi/n) \quad (18)$$

where R_r and R_c are respectively the radius of the rotor disk, and the cylindrical magnet knowing that E_d is the thickness of the disk magnets on the rotor. The angle functions are defined as :

$$\theta_1(t) = \pi/2 + \beta + (\pi - 2\beta)[1 - \cos(n * \omega t \cdot 0.5)] \cdot 0.5 \quad (19)$$

$$\theta_2(t, \alpha) = \alpha + \pi[1 - \cos(n * p * \omega t)] \quad (20)$$

with $\beta = \arcsin(R_{\min}/R_{\max})$

We can now calculate the mutual force between two magnetic dipoles for two cylindrical magnets [18, p130] :

$$\mathbf{F}[\mathbf{R}(t), t] = -\nabla E_P = \frac{6\mu_0 m_1 m_2}{4\pi R^4} [A_1 \mathbf{n} + A_2 \mathbf{n}_1 + A_3 \mathbf{n}_2] \quad (21)$$

with the definitions :

$$A_1 = \mathbf{n}_1 \cdot \mathbf{n}_2 - 5(\mathbf{n}_1 \cdot \mathbf{n})(\mathbf{n}_2 \cdot \mathbf{n}) \quad A_2 = \mathbf{n}_2 \cdot \mathbf{n} \quad A_3 = \mathbf{n}_1 \cdot \mathbf{n} \quad (22)$$

$$A_1(t, \alpha) = -[3 \cos(\theta_1 + \theta_2) + 5 \cos(\theta_1 - \theta_2)] \cdot 0.5 \quad A_2(t, \alpha) = \cos \theta_2 \quad A_3(t) = \cos \theta_1 \quad (23)$$

The rotational velocity of the rotor is given by the relation $\mathbf{U}(t) = \omega r_m \mathbf{n}_3(t)$ where the unit vector $\mathbf{n}_3(t)$ is directed along the axis x , we get :

$$A_1 \mathbf{n} \cdot \mathbf{n}_3 + A_2 \mathbf{n}_1 \cdot \mathbf{n}_3 + A_3 \mathbf{n}_2 \cdot \mathbf{n}_3 \quad (24)$$

with the definitions :

$$\mathbf{n} \cdot \mathbf{n}_3 = \cos[\delta(t)] \quad \mathbf{n}_1 \cdot \mathbf{n}_3 = 0 \quad \mathbf{n}_2 \cdot \mathbf{n}_3 = \cos[\theta_2(t, \alpha) - \delta(t) + \pi] \quad (25)$$

knowing that $\delta(t) = \arcsin[R_{\min}/R(t)]$ and $\beta = \delta(0)$.

We can now calculate the kinetic and potential powers :

$$P_P(t, \alpha) = \frac{dE_P}{dt} = \frac{\partial E_P}{\partial t} - \mathbf{U} \cdot \mathbf{F} \quad P_K(t, \alpha) = \frac{dE_K}{dt} = \mathbf{U} \cdot \mathbf{F} \quad (26)$$

The mean powers have for expression ;

$$\begin{aligned} \langle P_K(t, \alpha) \rangle &= 1/T \int_0^T \mathbf{U} \cdot \mathbf{F} dt \neq 0 & \langle P_T(t, \alpha) \rangle &= 1/T \int_0^T P_T(t, \alpha) dt = 0 \\ \langle P_P(t, \alpha) \rangle &= 1/T \int_0^T [P_T(t, \alpha) + P_P(t, \alpha)] dt = -\langle P_K(t, \alpha) \rangle \neq 0 \end{aligned} \quad (28)$$

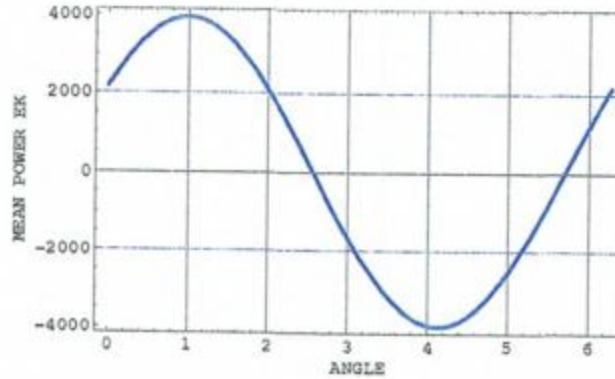


FIGURE 3 - Mean Power versus the initial angle

The numerical simulation of the average kinetic power as a function of the angle α indicates, as shown in Figure 3, that it is maximal and positive for $\alpha = \pi/3$ and $p = 1$, corresponding to a rotational frequency of the rotor magnets twice that of the angular frequency associated with θ_1 , which is characteristic of a parametric operating mode of the motor.

It is now necessary to demonstrate that the parametric behavior of the motor leads to the generation of kinetic energy independent of the initial

kinetic energy associated with starting the motor, as observed by an external observer. To formalize this analysis, we draw inspiration from the behavior of a harmonic oscillator, whose kinetic and potential energies are expressed as follows :

$$E_K(t) = E_0 \sin^2(\omega t) \quad E_P(t) = E_0 \cos^2(\omega t) \Rightarrow E_K(t) + E_P(t) = E_0 \quad (29)$$

$$P_P(t) = \frac{dE_P}{dt} \quad P_K(t) = \frac{dE_K}{dt} = -P_P(t) \Rightarrow \langle P_K(t) \rangle = -\langle P_P(t) \rangle = 0 \quad (30)$$

It can be observed that the average kinetic and potential powers of a harmonic oscillator are zero, whereas these same average powers are nonzero in the case of a parametric oscillator. This analysis is sufficient to demonstrate energy generation, which is furthermore stationary since the derivative of the average kinetic power is zero. An estimate of the average power for a single magnetic gate is approximately 3.94 kW for $p = 1$, $\alpha = \pi/3$ and $F = 100\text{Hz}$.

We will now give a simple mathematical proof that the conservation of energy is violated when the potential energy is of the form $E_P[\mathbf{R}(t), t]$, then let assume that we have :

$$E_P[\mathbf{R}(t), t] = E[\mathbf{R}(t)] \cos^2(\omega t) \Rightarrow \frac{\partial E_P}{\partial t} = -2E[\mathbf{R}(t)] \sin(\omega t) \cos(\omega t) \neq 0 \quad (1)$$

which implies

$$\left\langle \frac{\partial E_P}{\partial t} \right\rangle = \frac{1}{T} \int_0^T \frac{\partial E_P}{\partial t} dt = 0 \quad (31)$$

4 THEORETICAL DISCUSSION

The numerical simulation of the magnetic motor showed that its mode of operation is that of a parametric oscillator, which explains the high efficiency nature of this motor. This fact is not new since Russian and French physicists working in leading physics institutes, and laboratories in the 1930's, built overunity parametric oscillators, and some pretty big ones. That work is fully documented in both the Russian [19] and French [20,21] scientific literature. The devices were developed and tested in several physics institutes and laboratories. With linear loads the oscillators would progressively

build to self-destruction. With nonlinear loads, the devices would stabilize and power themselves, and their loads.

Since then, the over-unity character of parametric oscillators has largely been omitted from the scientific literature. This topic is now addressed under the term "parametric amplifier" to avoid discussing a violation of the law of conservation of energy. As evidence, one may cite the review article written by Pierre Collet [22] in 2019, in which the energetic concept of parametric oscillators is not addressed. A familiar experience of parametric oscillation concerns a child playing on a swing. By alternately raising and lowering his center of mass at key points in the swing, a child can quickly reach large amplitudes provided that he has some amplitude to start.

The majority of physicists, fixated on the law of conservation of energy, assert, without experimental proof, that the kinetic energy supplied by the child is transferred into the additional kinetic energy gained by the swing, in order to satisfy this fundamental principle.

In fact, the electrostatic pendulum experiment [23,24,25] conducted by the author in 1997 and 2002 provides an answer to this question, namely that the creation of additional energy in a parametric process is truly observable. Indeed, in reference [26], the kinetic energy of the pendulum is multiplied by 69 in a parametric process when the supply voltage is varied appropriately using a potentiometer. The observer expends a kinetic energy $E_k = 0.5 * m\omega^2 r^2 = 3.6 \times 10^{-7} \text{ J}$, with $m = 2 \times 10^{-3} \text{ kg}$, $f = 1$, $r = 3 \times 10^{-3} \text{ m}$, to turn the potentiometer, while the kinetic energy of the pendulum reaches 10^{-2} J , corresponding to a parametric amplification of 2.77×10^4 . Although there is a considerable energy gain, the electrostatic pendulum experiment is not over-unity because, in the energy balance, one must take into account the energy expended to create the plasma. One may also cite a more recent experiment [27] on the electrostatic pendulum. It is important to emphasize that certain criticisms in the references [23,24] have been raised concerning the origin and magnitude of the stimulated force. These criticisms have been refuted in detail in reference [26].

5 DEFINITIONS OF EFFICIENCY AND OVER-UNITY

Let us recall the two different definitions of efficiency :

Classical Thermodynamic Efficiency

In physics, efficiency typically refers to the ratio of useful output energy to input energy in a system. It is expressed as : $\text{Efficiency} = 100 \times E_{\text{out}}/E_{\text{in}}$. This definition applies strictly to isolated systems, where the conservation of energy dictates that efficiency cannot exceed 100%. Therefore, the definition of an over-unity motor implies an efficiency higher than 100%, and the fact that the observer does not bring any energy to use the motor.

Coefficient of Performance (COP)

A different metric "COP" is commonly used for systems like heat pumps and refrigerators. It is defined as the ratio of the heating or cooling provided to the surroundings over the electrical energy consumed at the input of the heat pump. We have : $\text{COP of heat pump} = 1 + \text{COP of the refrigerator}$. The COP of the refrigerator can be less than one or greater than one. The above formula also shows that the COP of the heat pump can never be less than one.

Importantly, these systems appear to challenge the classical thermodynamic view because they move heat from a lower to a higher temperature reservoir seemingly against the natural thermodynamic gradient that dictates heat flow from hot to cold. Indeed, the function of the refrigerator is to move the heat from the low temperature reservoir to the high temperature reservoir.

Traditional definitions of efficiency apply to systems like engines and boilers, where energy is converted from one form (e.g., chemical, electrical) into another typically mechanical or thermal. In contrast, refrigerators and heat pumps redistribute energy rather than convert it. As such, the COP framework is more appropriate for analyzing non-isolated systems and may also provide insight into potential over-unity systems. To explore this further, we describe one simple experiment that can be reproduced at the university level to convince students that over-unity technologies with COP greater than 1 also exist.

Simple Magnetic Overunity Toy

A system can exhibit a coefficient of performance greater than one. Indeed, this is already a reality for heat pumps, which commonly achieve

COP values greater than 3. Furthermore, we will show that the SMOT experiment challenges the conservation law of energy, as it exhibits behavior inconsistent with this foundational law under conventional assumptions.

Watson's SMOT is a simple device which demonstrates the possibility to get over-unity efficiency. Easily built with readily available square magnets. This device is a permanent magnet propulsion system wherein a steel ball is propelled up an inclined plane between two rows of permanent bar magnets. These magnets being in spaced relationship with all north poles of the first row facing in the same direction and with all south poles in the second row facing in the same but opposite direction to the first row.

Two such arrays are made and fastened to a wooden board so that they form an angle. The two permanent bar magnets generate an inhomogeneous magnetic field $\mathbf{B}$ between the two bar magnets since they are not parallel. Bisecting that angle is an aluminum track on which a steel ball can roll freely. The length of the aluminum track supporting the ball is configured to allow the ball to escape the track where the potential magnetic energy is minimum in order that the ball drop out of the magnetic field.

The steel ball has a magnetic moment $\mathbf{M}$ and a mass m , therefore the potential energy of the interaction between the metallic ball and the magnetic field is $E_B = -\mathbf{M} \cdot \mathbf{B}$. The steel ball is submitted to two conservative forces : the gravitational and the magnetic forces which derive from a potential $\mathbf{F}_i = -\nabla E_B$. If we considered the ball, the magnets and Earth as an isolated system, then we have the following definition of the mechanical energy :

$$E_M = E_K + E_G + E_B = Ct \Rightarrow \Delta E_M = \Delta E_K + \Delta E_G + \Delta E_B = 0 \quad (32)$$

Knowing that $\Delta E_G = -mgh$ and $\Delta E_B < 0$, the efficiency will be $\Delta E_K / |\Delta E_G + \Delta E_B| = 1$ However, it is more physical to consider the ball and Earth as a closed system $\Delta E_K + \Delta E_G = -\Delta E_B$ with a $COP = \Delta E_K / |\Delta E_G| = 1 + \Delta E_B / \Delta E_G > 1$

In the presence of the magnets, the steel ball will climb on the ramp because the magnets induce in the ball a magnetic moment and an interaction force appeared between the ball and the inhomogeneous magnetic field that does work against the gravitational field. The COP is over-unity for a closed system. Indeed, a $COP = 1.14\%$ was measured as demonstrated in [28]. The work done by the magnets is free-energy because the magnetic energy is not consumed since the magnetic force derives from a reversible

potential energy and therefore, the motion can be repeated indefinitely without consuming any energy provided by the magnets that is to say the magnetic energy is not decreased in the process. The SMOT experiment is a fundamental experiment because it proves that an efficiency higher than 100% is possible since at the input we have a small potential energy given by the observer and at the output the observer recover a kinetic energy which is higher than the input potential energy.

6 CONCLUSION

We present in this paper a new configuration of a magnetic motor consisting solely of permanent magnets on both the rotor and the stator, whose mode of operation is that of a parametric oscillator, which justifies the over-unity nature of this motor.

By incorporating a second rotational degree of freedom and exploiting time-varying magnetic fields, we demonstrate a configuration in which the classical conservation of energy can be effectively bypassed. Further experimental validation is required to confirm the practical realization of such a motor.

7 WARNING

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